David Alciatore, PhD ("Dr. Dave")   **ILLUSTRATED PRINCIPLES**
**"VEPS GEMS - Part II: Basic Shot Making and Position"**

Note: Supporting narrated video (NV) demonstrations, high-speed video (HSV) clips, and technical proofs (TP), and all of my past articles, can be accessed and viewed online at **billiards.colostate.edu**. *The reference numbers used in the article help you locate the resources on the website. If you have a slow or inconvenient Internet connection, you might want to view the resources from a CD-ROM or DVD. Details can be found online at:* **dr-dave-billiards.com**.

This is the second article based on the "*The Video Encyclopedia of Pool Shots (VEPS)*," an instructional video series I recently created with past BD columnist and good friend Tom Ross. Last month I introduced the series and presented the complete catalog of shot categories. VEPS contains over 750 shot types within 50 main categories and five major areas. This month I will highlight several "gems" from the first major area: "Basic Shot Making and Position," which is the topic of the first DVD in the set. "Gems" are shots or concepts Tom and I think are important to know as a pool player, whether understood explicitly or in a more intuitive way. The complete list of shot types in each major area, an outline of the entire VEPS series, and video excerpts from each DVD can be viewed online at: **dr-dave-billiards.com/veps**.

The first "gems" I will present involve how to aim cluster break-out shots. **Diagram 1** shows a situation where we want to pocket the 11-ball and also break out the 12-ball-13-ball cluster to create an opportunity to run-out and win the game. As shown in the diagram, the cluster is between the natural-angle direction predicted by the 30° rule for a rolling cue ball (CB) (see **NV B.66**) and the tangent-line direction predicted by the 90° rule for a stun shot. (For more information about how to predict CB direction for different types of shots, see **NV B.43**.) Because the cluster lies between the two CB reference directions, we need to make sure the CB has only partial roll (about half of full roll) when it strikes the 11-ball. Again, no roll (stun) would send the CB in the tangent-line direction, and full roll would send the CB in the natural-angle direction. With medium speed, a hit just above center will create half roll and send the CB into the heart of the cluster. With a solid carom into the cluster, as shown, we should expect a follow-up shot at the either the 12-ball or 13-ball, or both, as demonstrated in **NV B.68**.
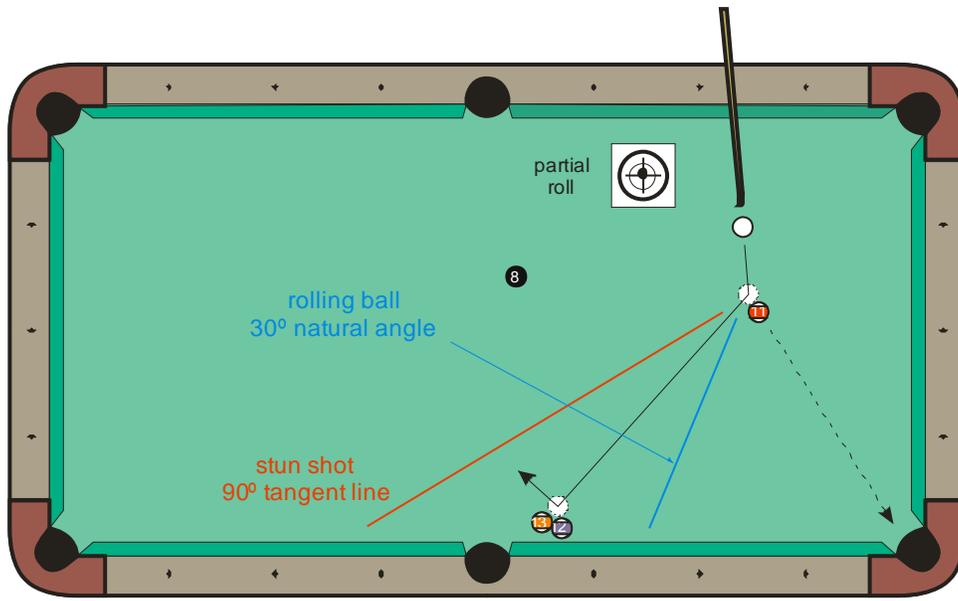
Diagram 1 Roll-stun "tweener" break-out shot

NV B.43 – Cue ball position control stun, roll, and draw reference lines
NV B.66 – The 30° rule, from VEPS I
NV B.68 – Tweener cluster breaks, from VEPS I

normal video

In **Diagram 2**, the cluster is between the tangent-line direction and the good-action draw-shot direction predicted by the trisect system (see **NV B.67** and **NV B.68**). My March '06 article covered the trisect system in detail; but to summarize, the final CB direction with a "good action" draw shot is three-times the cut angle away from the original direction (see "A" and "2A" in the diagram). Because the 12-ball-13-ball cluster again lies between the two CB reference directions, we need to make sure the CB has about half the "good action" amount when it strikes the 11-ball. Again, a stun shot would send the CB along the tangent line, missing the cluster to the left. And a good-action draw shot would cause the CB to miss to the right. With medium speed, and about 75% tip offset, we should see the CB head into the heart of the cluster. And as with the previous example, we should expect a follow-up shot to enable us to continue the run (see **NV B.68**).
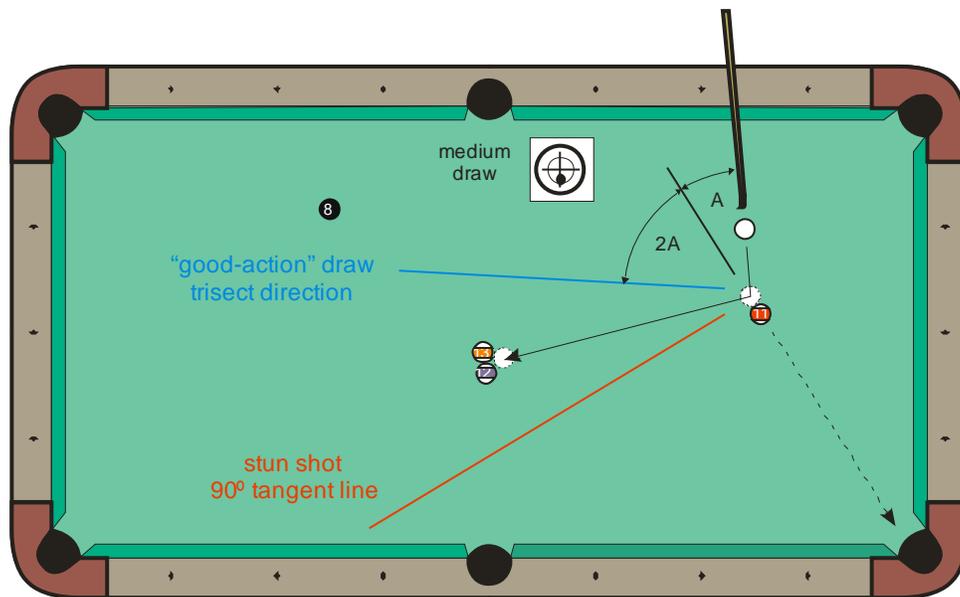
Diagram 2 Draw-stun "tweener" break-out shot

NV B.67 – The trisect system for draw shots, from VEPS I

normal video

The next two "gem" shots are caroms, where the object ball (OB) is kissed off another ball. **Diagram 3** shows what is often referred to as a "wired" carom. Here the 3-ball is frozen to the 13-ball, and the tangent line off the 13-ball points straight into the heart of the pocket. In this case, the 3-ball can be pocketed using a wide range of speeds and with a wide range of CB contact points on the 3-ball. As shown in **NV B.69**, even with a small gap between the 3-ball and 13-ball, the 3-ball will still head straight into the pocket after the carom because the 3-ball cannot develop enough forward roll (topspin) over the short distance (gap) between the balls. With a larger distance, to use the same 3-ball ghost-ball target on the 13-ball, you would need to use more speed to minimize the amount of roll the 3-ball develops on the way to the 13-ball. As shown in **NV B.69**, with slower speed, the CB picks up forward roll (topspin) on the way to the 13-ball, and the 3-ball curves forward of the tangent line missing the pocket.

wired carom
off 13-ball
tangent line
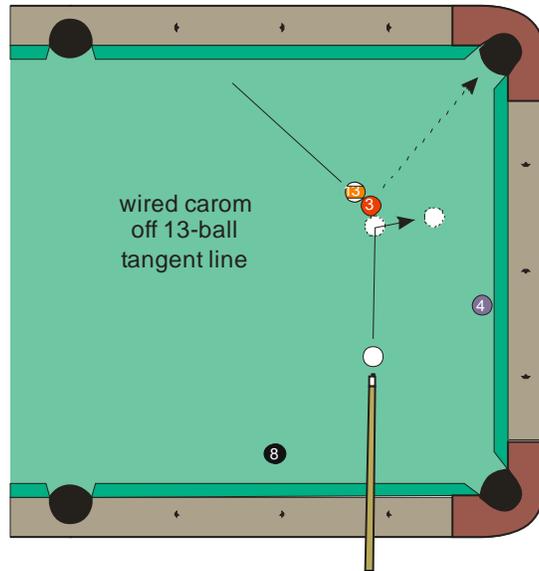
[Diagram 3](#) Wired carom shot

    Diagram 4 shows a natural-angle carom example. Here, the 12-ball blocks the direct path for a cut shot of the 3-ball into the pocket. However, the 3-ball can be kissed off the 13-ball instead and pocketed. Unlike the previous example, where acquired topspin was to be avoided, here we want the 3-ball to have full roll. Luckily, in this example, the required direction off the 13-ball is very close to the $30°$ natural angle for a rolling CB (see **NV B.66**). So with a slow-enough hit on the 3-ball, it will easily develop roll before the 13-ball and carom towards the pocket. And as predicted by the $30°$ rule, this will occur with a wide range of contact points (ball-hit fractions) on the 13-ball (i.e., there is a fairly wide margin for error). Whenever a carom shot happens to be lined up in the natural-angle direction like this, it is nearly as automatic as a wired carom ... provided you don't shoot too hard, preventing the OB from developing full roll.
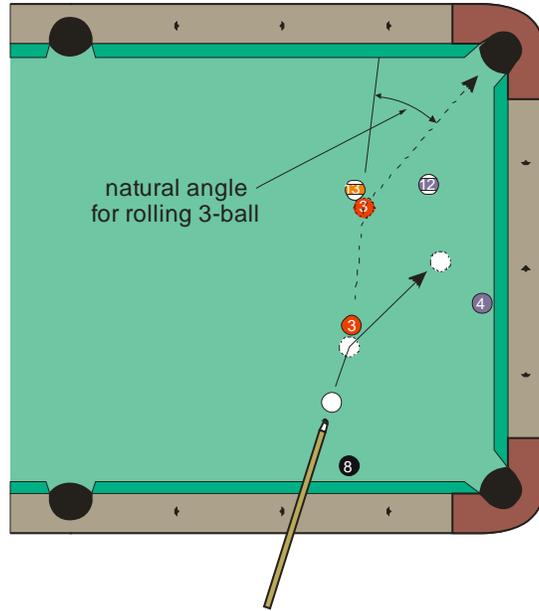
Diagram 4 Natural-angle carom shot

Example "gems" from the first VEPS DVD, including the ones discussed above, can be viewed on the VEPS website or at **billiards.colostate.edu** under **NV B.65** through **NV B.69**.

NV B.69 – Carom shots, from VEPS I

normal video

Well, I hope you enjoy and benefit from my series of articles highlighting shots and "gems" from the "*Video Encyclopedia of Pool Shots*" series. Next month, we'll look at selected "gems" from the second main category of shots: "English and Position Control."

Good luck with your game,
Dr. Dave

PS:

- I know other authors and I tend to use lots of terminology (e.g., squirt, throw, stun, ball-hit fraction, etc.), and I know not all readers are totally familiar with these terms. If you ever come across a word or phrase you don't fully understand, please refer to the online glossary on my website.

- I want to thank Jim Valasina. He graciously proof-reads my articles every month to help find errors and make suggestions. My article quality is better as a result of his efforts. Thanks again Jim!

Dr. Dave is author of the book, DVD, and CD-ROM: "The Illustrated Principles of Pool and Billiards," the DVD Series: "The Video Encyclopedia of Pool Shots," and the DVD: "High-speed Video Magic."